An abstract graphic on the left side of the slide features a map of Asia, primarily in shades of purple and pink, overlaid with numerous semi-transparent circles in various colors including yellow, orange, green, blue, and purple. The background is a light blue gradient.

*“The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.”*

*Alvin Toffler an American futurist*

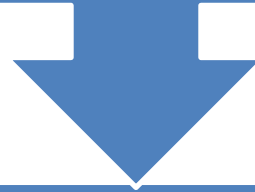


# Make it at the Library, 2014

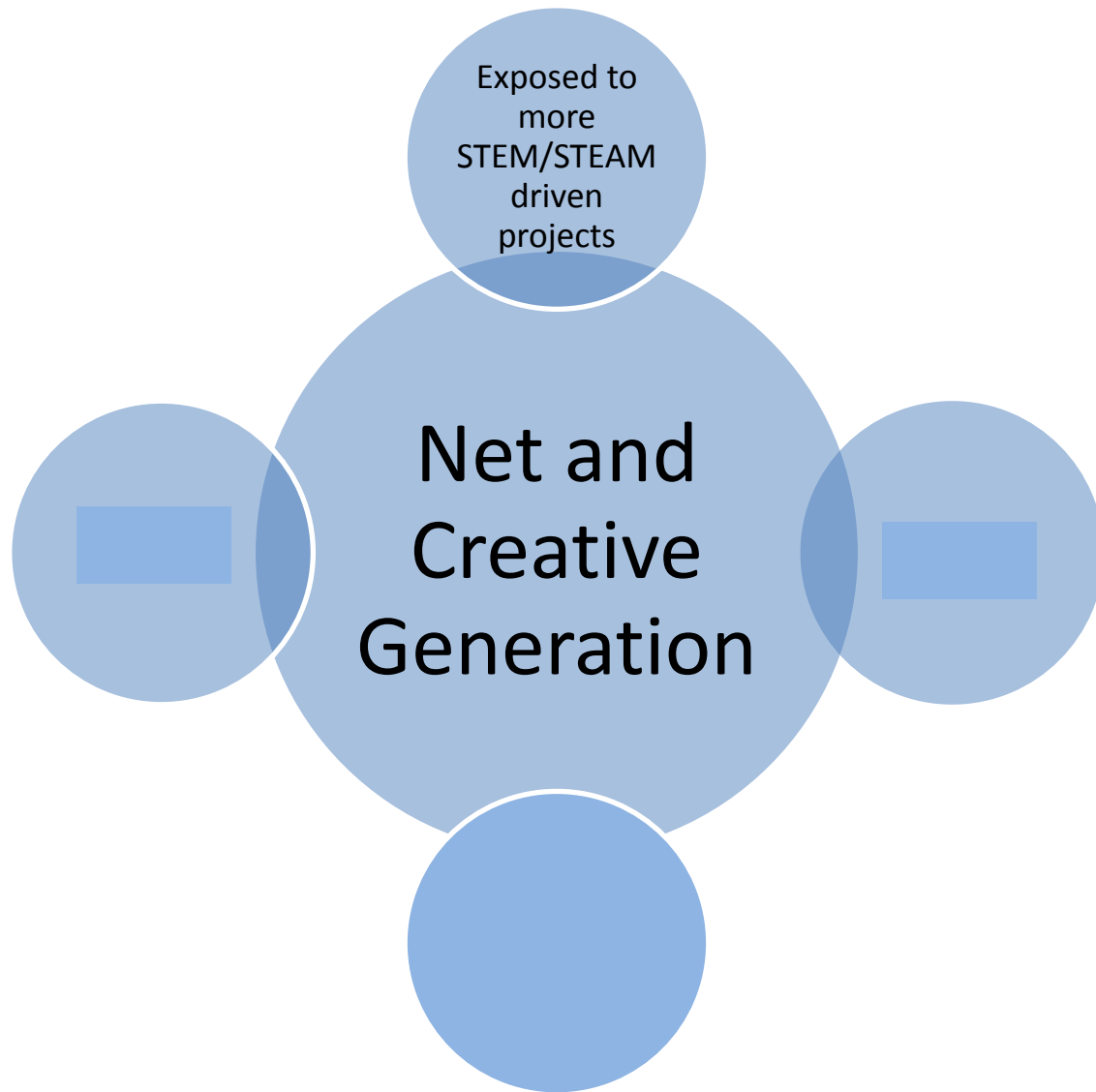


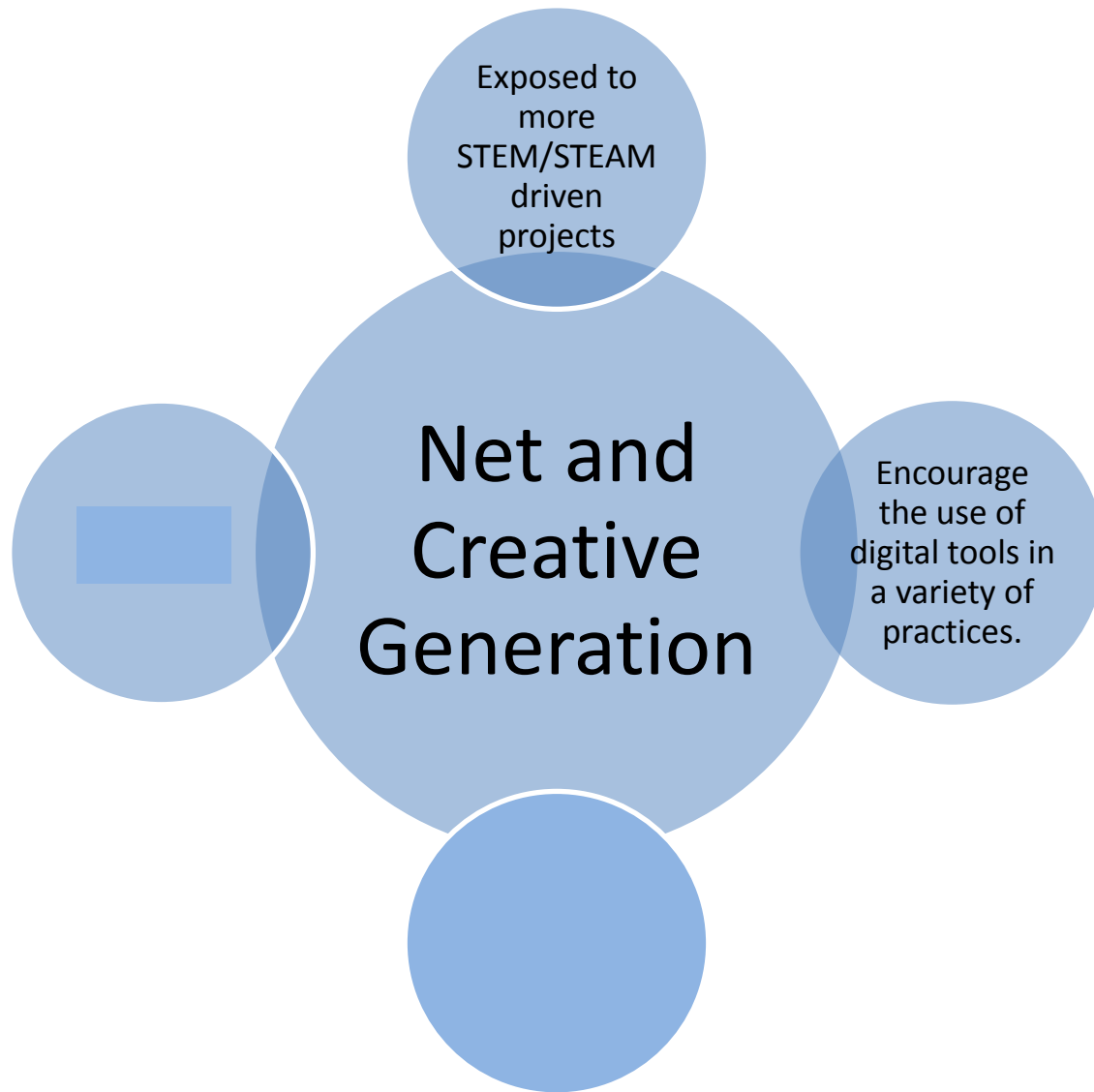


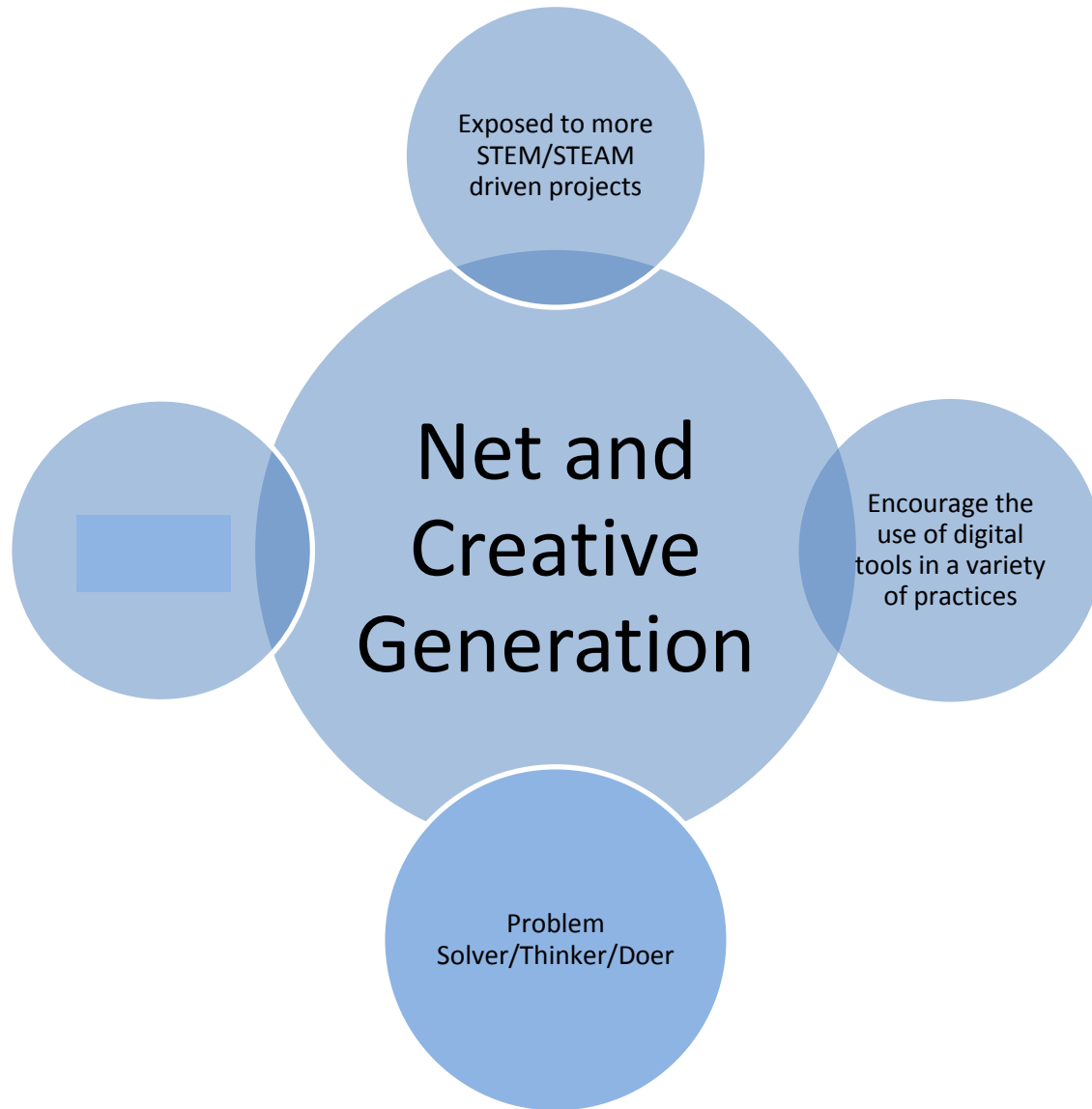
The Net Generation



Creative Generation

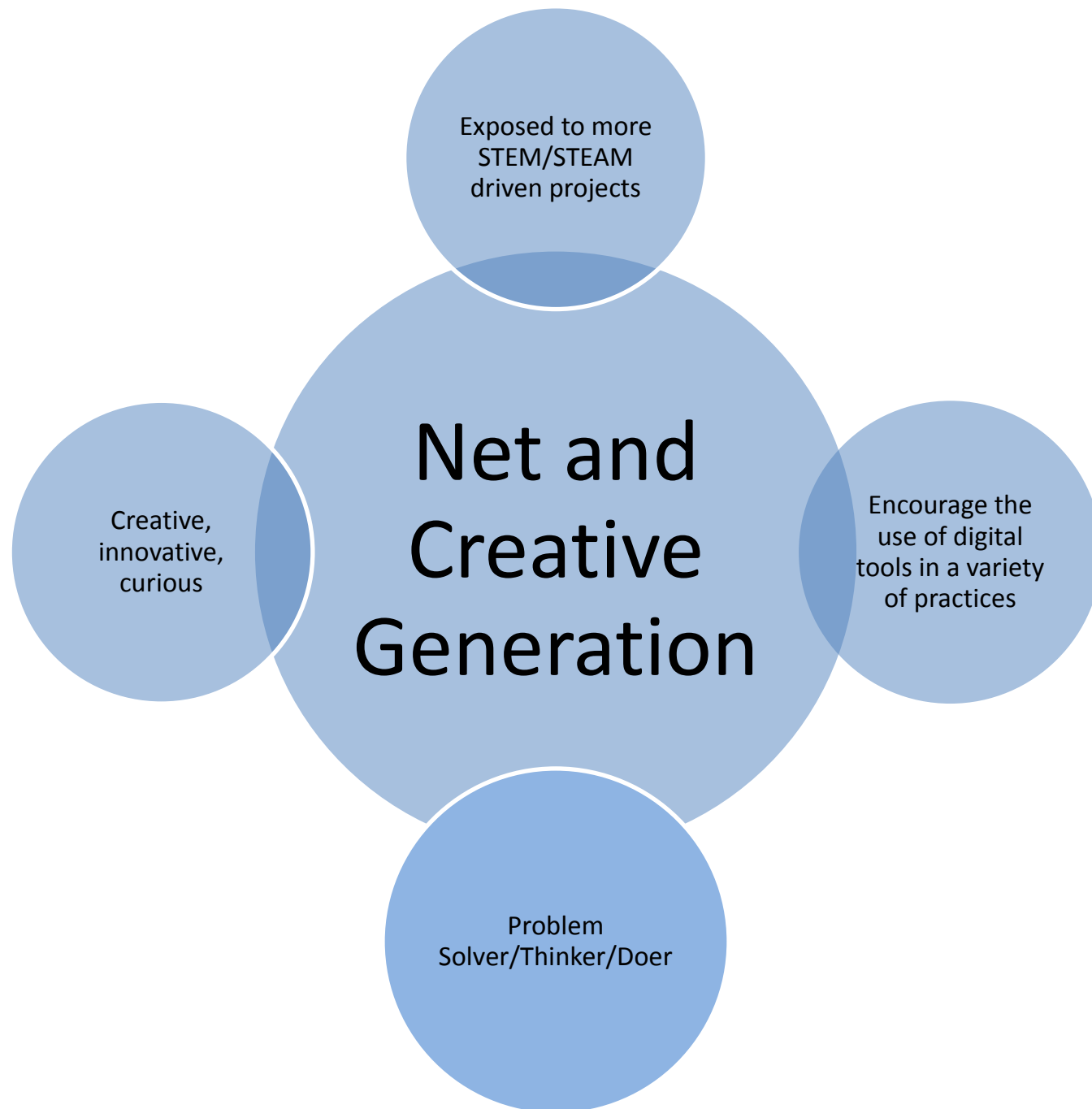


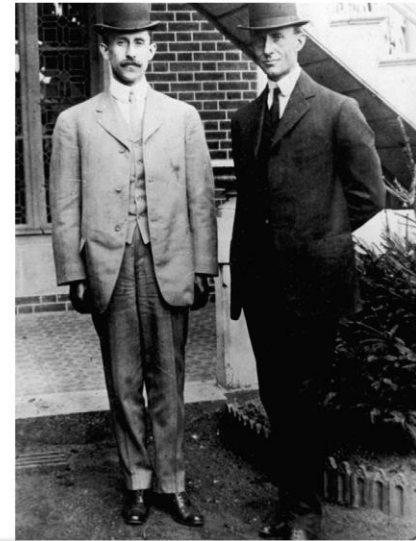
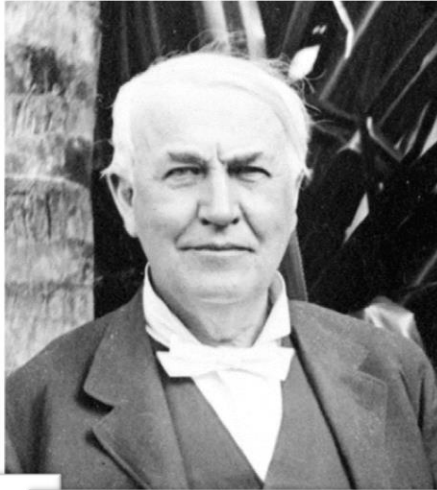






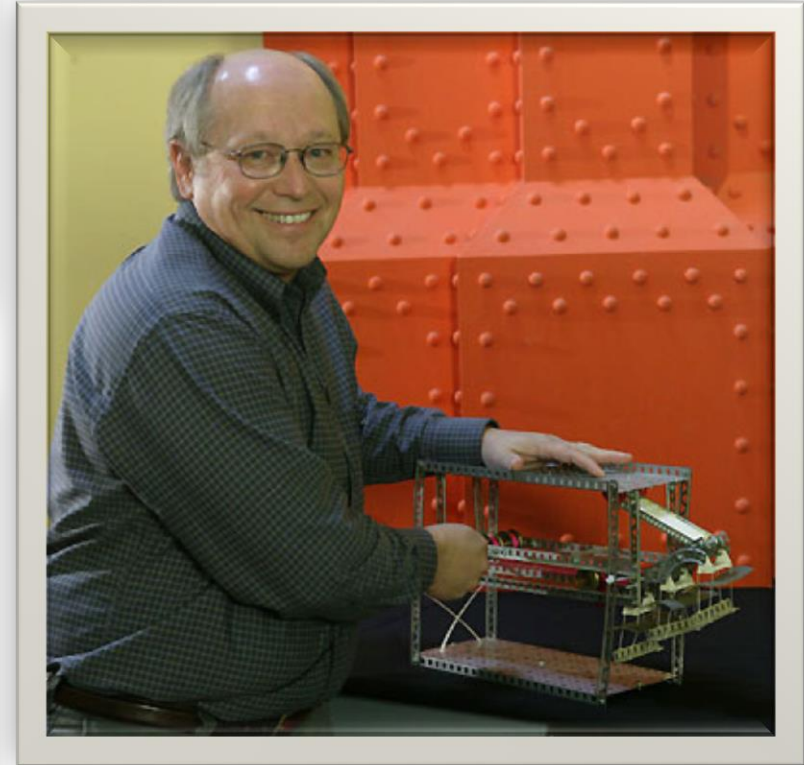








Soarin' Over California

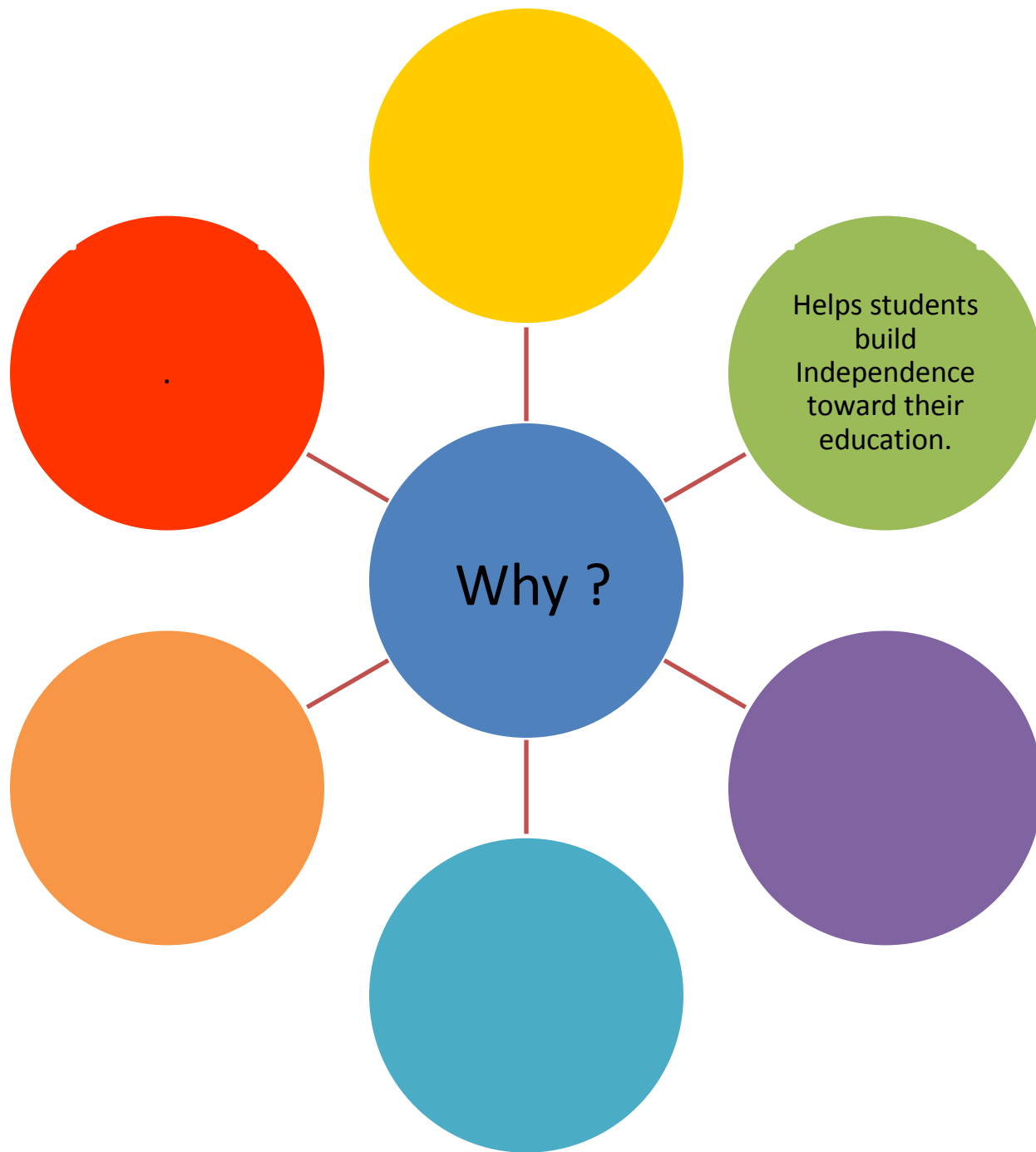


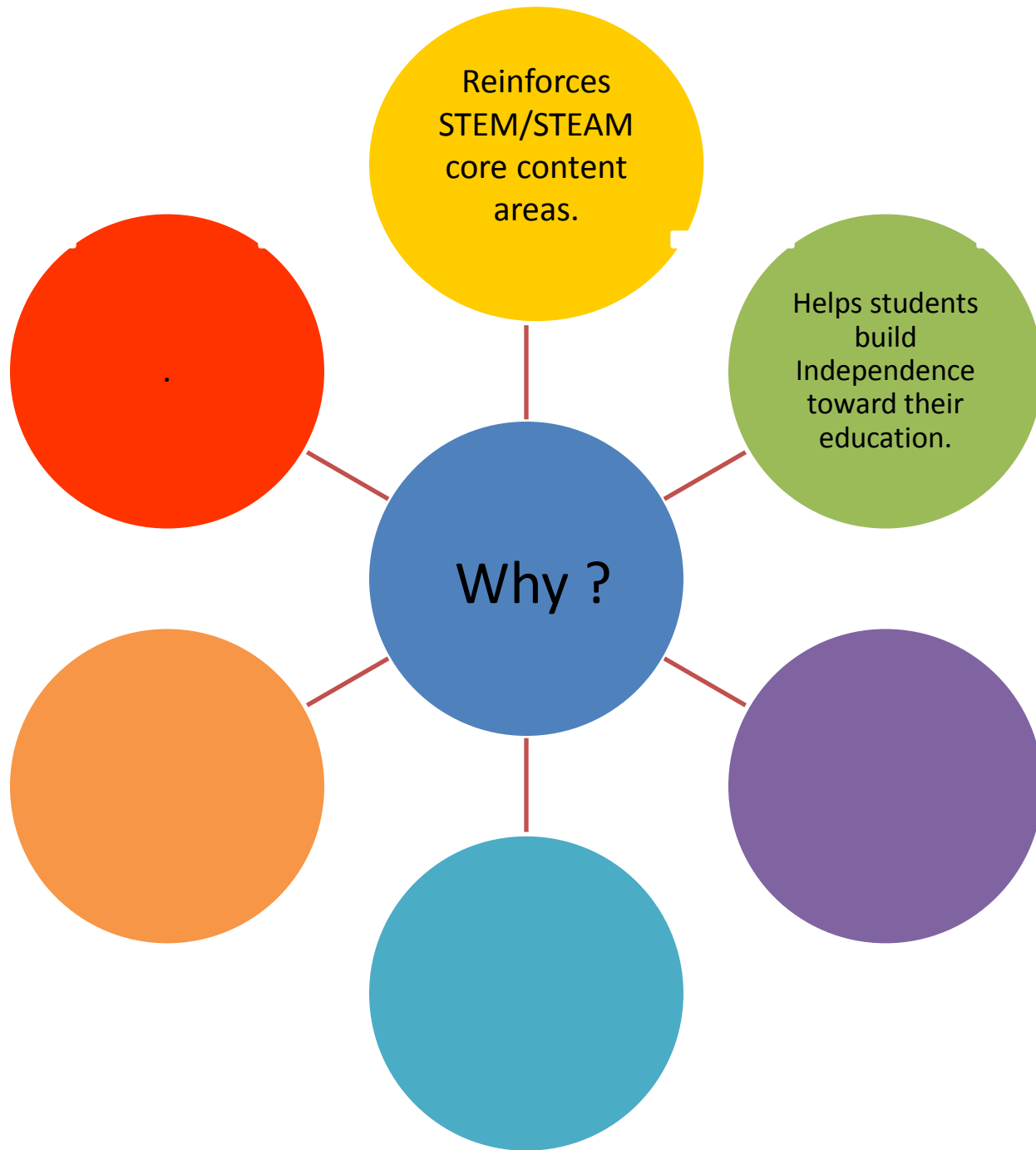
Mark Sumner  
Disney Imagineer



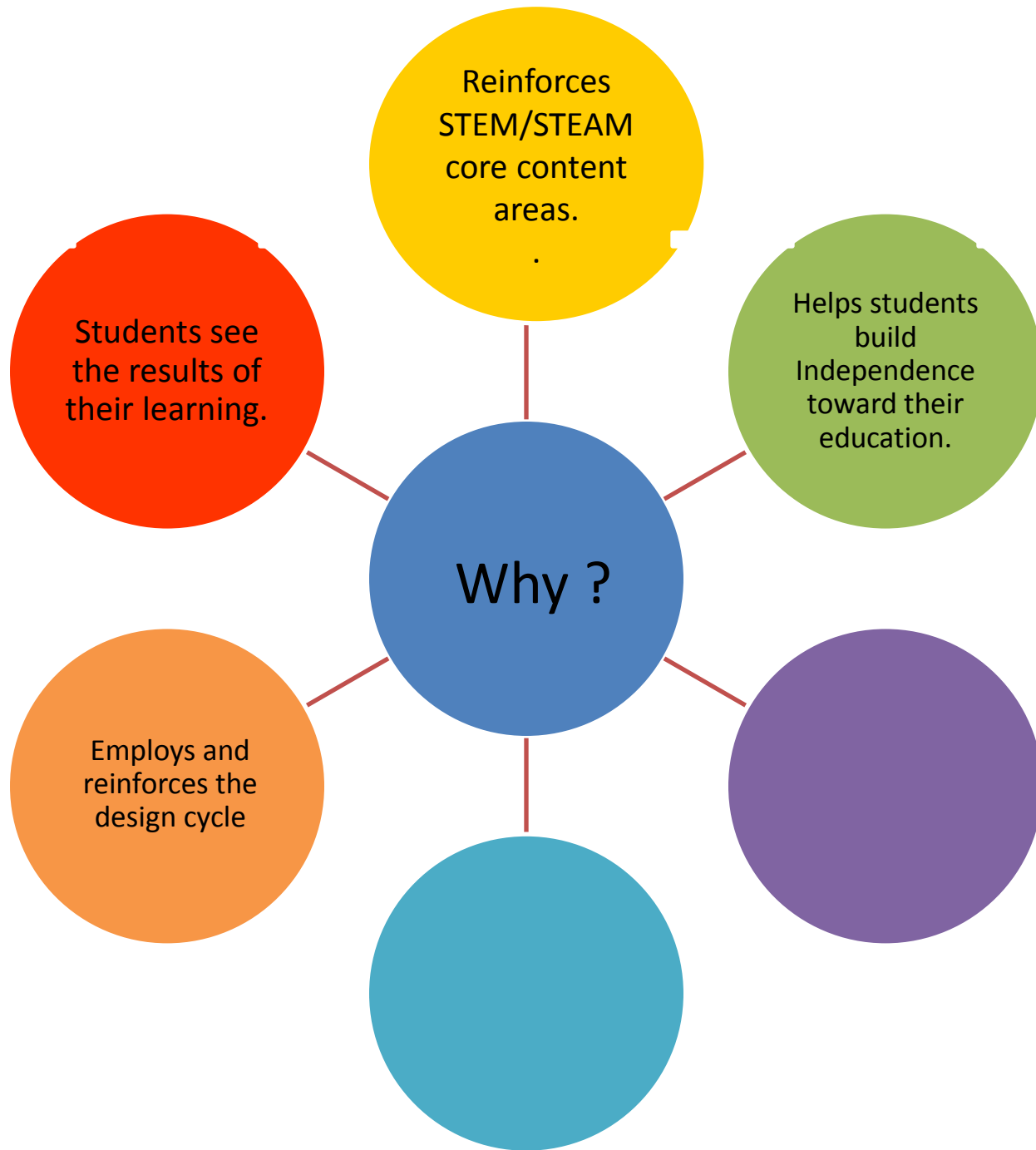
# Why Building Elements?



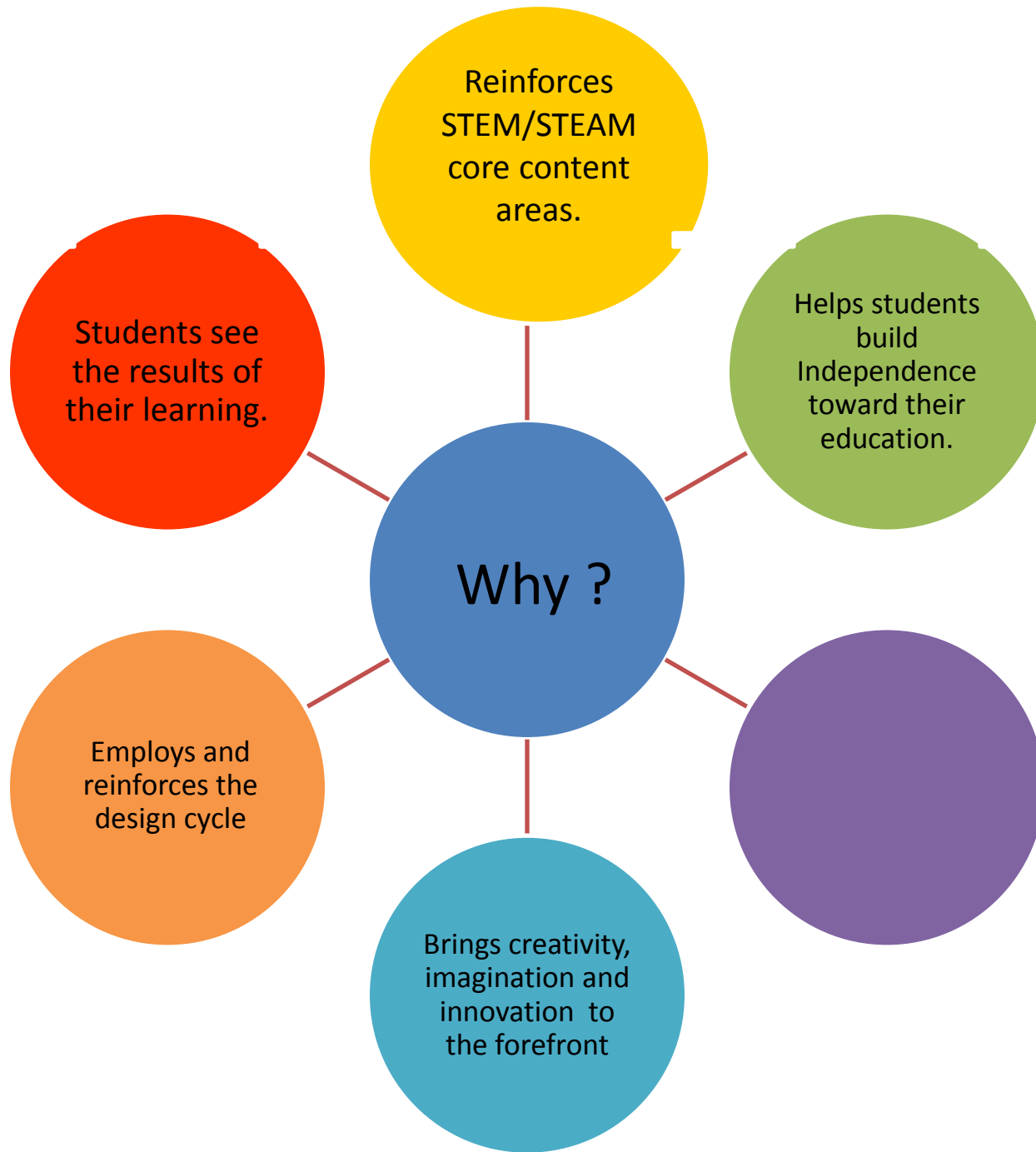
















Let's Talk  
Bricks...

# K

What do you think you know about the BrickLab

# W

What do you think you want to know about the Bricklab?

# L

What did you LEARN about the BrickLab?

K

W

L

**curriculum**

**manipulatives**

**pedagogy &  
professional  
development**

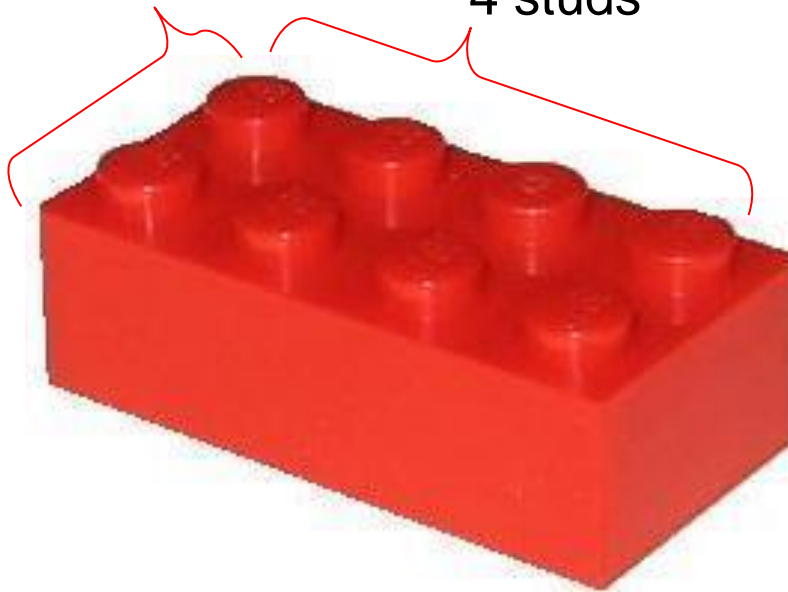


**storage and  
management**

2 x 4 brick

2 studs

4 studs



### BrickLab Facts:

- Bricks are measure across and down
  - Smallest brick – 2x2
  - Largest brick – 2x10
- 8x16 Base plates are included with the BrickLab



	2x2	2x3	2x4	2x6	2x8	2x10	8x16	TOTAL
Red	520	200	440	50	50	40	15	1315
White	400	200	320	0	0	0	0	920
Green	200	80	120	0	0	0	15	415
Yellow	520	200	440	50	50	40	15	1315
Black	320	120	240	0	0	0	0	680
Blue	520	200	440	50	50	0	0	1260
Orange	200	80	120	0	0	0	0	400
Brown	80	80	80	0	0	0	0	240
TOTAL	2760	1160	2200	150	150	80	45	6545







**THE HINGE** The hinge joint has given this two dimensional manipulative the ability to turn, swing, or move at different angles.

Collect the following bricks to build a hinge:



1 2x2



4 - 2x4



2 - 2x8

1.



1. Place two 2x8 bricks in front of you.



2. Form a "V" shape with the 2x8 bricks by sliding them together until the two corners meet.



3. Attach a 2x2 brick to the 2x8 bricks so that the first stud is covered and the second stud is bare.

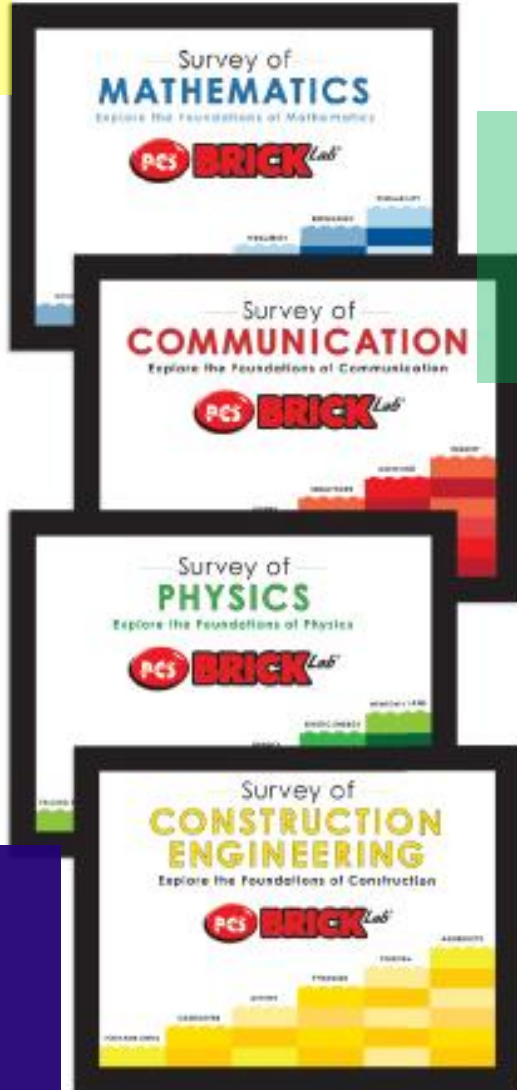


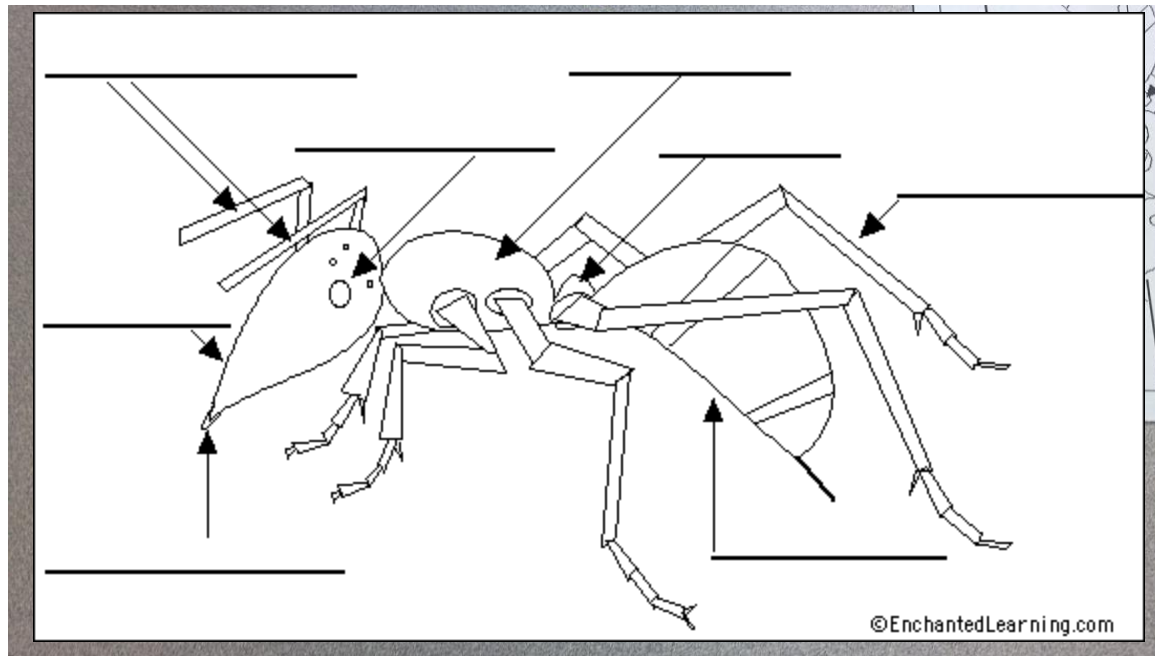
4. Place one 2x4 on each 2x8 leaving two rows of studs bare on the far end of the brick.



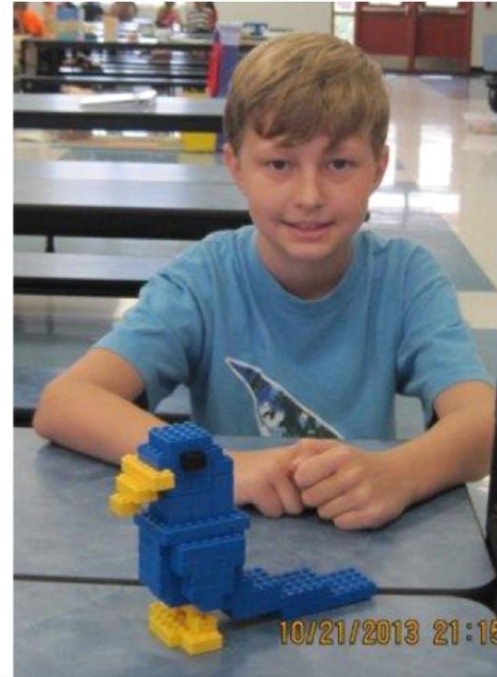
5. Place one 2x4 on each side of the hinge. Cover two rows of studs on the existing 2x4 bricks and one stud on the existing 2x2 brick.







***Ants***







Be sure the  
participants  
hands are  
clean  
prior to using  
the lab.

Make sure you  
have enough time  
for break down.  
**CHUCK DUMPING**  
is not  
accepted.

Respect others and  
their builds.  
Bricks are not as  
sturdy as you  
may think.  
**PLEASE,**  
**DON'T TOUCH**  
any build that is not  
your own.

# K

What do you think you know about the BrickLab

# W

What do you think you want to know about the Bricklab?

# L

What did you LEARN about the BrickLab?

K

W

L

# E<sup>ngineering</sup>

PCS DISCOVER **E!** KIT

3rd

Inspire Tomorrow's Engineers

# K

What do you think you know about the BrickLab

# W

What do you think you want to know about the Bricklab?

# L

What did you LEARN about the BrickLab?

K

W

L

# fischertechnik components



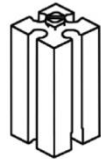


# What is Nomenclature?

A system of words used to name things in a particular discipline.



(1) Placa Base  
(1) Base Plate  
120x60



(4) Bloque 30  
(4) Building Block 30



(3) Bloque 7.5  
(3) Building Block 7.5



(2) Bloque 5 con 2 Pernos  
(2) Building Block 5 with 2 pins



(4) Eje Clip 30  
(4) Clip Axle 30



(4) Eje Clip 45  
(2) Clip Axle 45



(2) Bloque 15  
(2) Building Block 15



(1) Bloque 15 con 2 Pernos  
(1) Building Block 15 with 2 pins



(4) Bloque 15 con Agujero  
(4) Building Block 15 with Bore



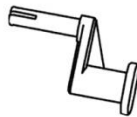
(4) Conector 15  
(4) Link 15



(3) Leva para Resorte  
(3) Spring Cam



(2) Engrane T10 delgado  
(2) Cog Wheel T10 Narrow



(1) Manivela  
(1) Crank Shaft



(1) Manga  
(1) Bearing Sleeve



(4) Anillo Separador  
(4) Spacer Rings



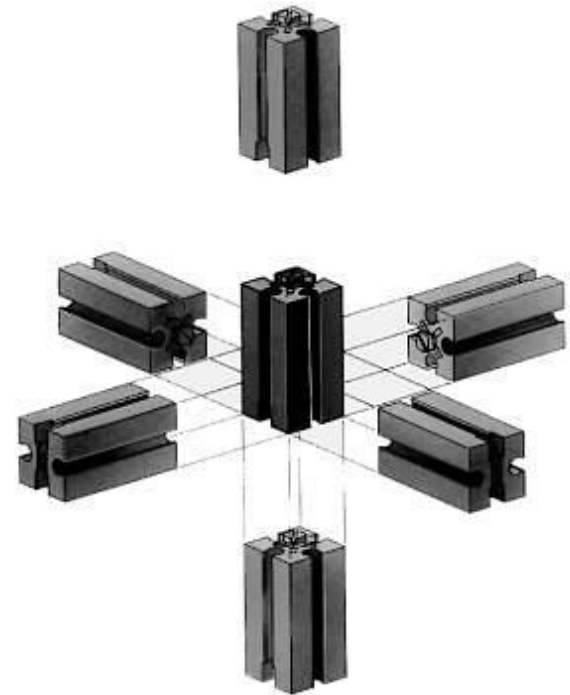
(2) Clip Adaptador  
(2) Clip Adapter



(2) Tornillo Sinfin (de Cremallera)  
(2) Worm

# Facts about fischertechnik

- They are all based on the metric system and measured in mm.
- Size is universal
- They use pins, grooves, clips, and bores to connect.
- They are 6 dimensional (connected on six different sides).
- The components, when attached, are very strong.



# Key Components



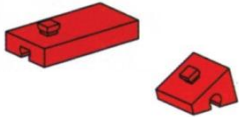
## Building Blocks

The building blocks are referred to as the Build Block 30, 15, 7.5, and 5. This means they are 30mm to 5 mm in length.



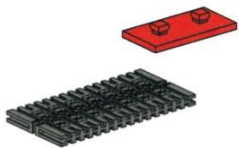
## Axles

There are a variety of axles in the labs. The most used is the Clip Axle. Clip Axle indicates there is a fork at each end.



## Building Plates and Angle Plates

These adaptable components are mainly used for spacing and connecting and offer versatility to builds.



## Mounting Plates/Building Plates

1mm thick and flat on one side, these plates are used for attaching to builds.



## Girders

Attach to builds via pin and groove or rivets.



## Gears

The Academy of Robotics provides a variety of gears. The usage depends on need.

Newton's  
in motion  
unless an

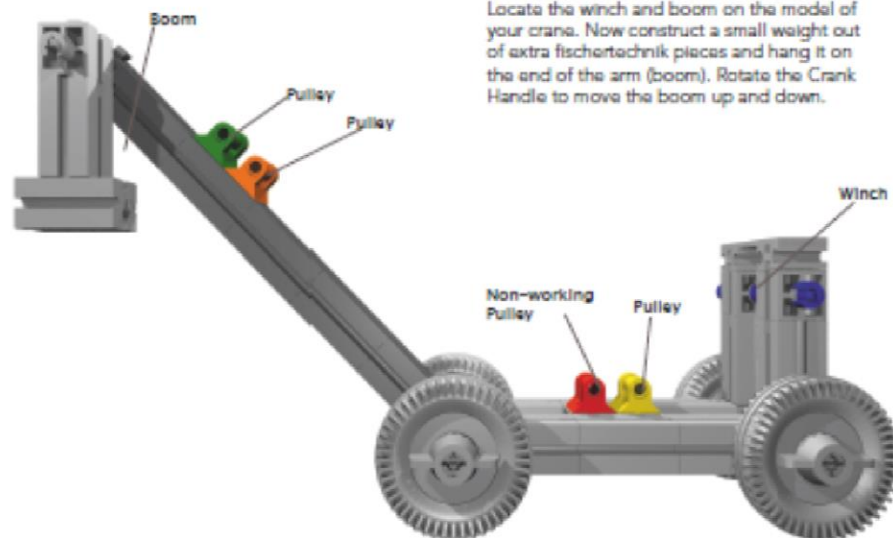
This mea  
moving, i  
unless so

On Earth,  
acts on m  
objects in  
surface o  
ground),  
other and  
kinetic en  
Because t  
ject forw

The use o  
friction b  
pulls on t  
wheel wi  
of the wa  
Because t  
contact w  
changing  
very little  
allows ob  
farther th

The brak  
this. Brak  
tating, wh  
between  
the vehic

## Try This

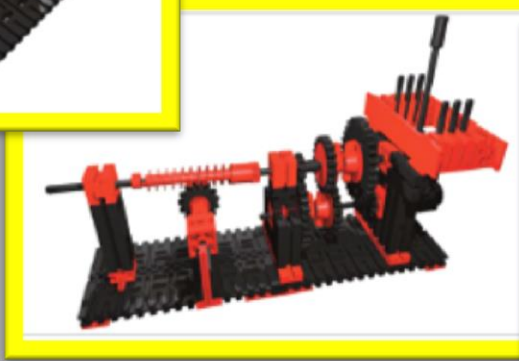
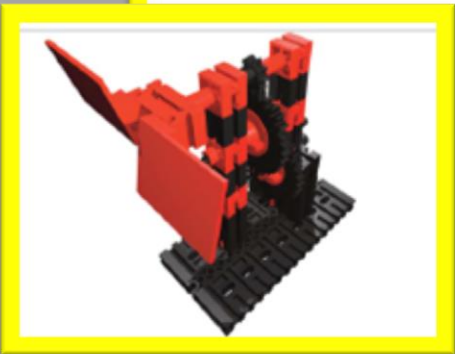
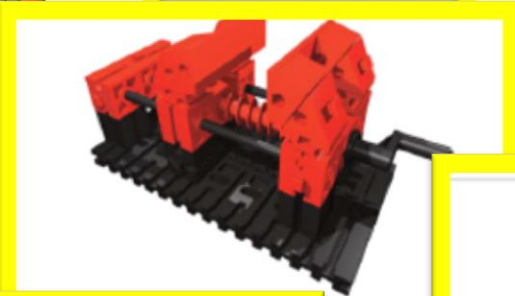
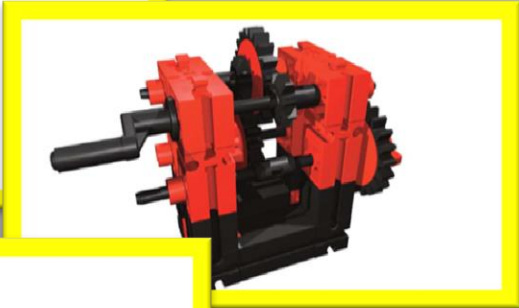


Locate the winch and boom on the model of your crane. Now construct a small weight out of extra fischertechnik pieces and hang it on the end of the arm (boom). Rotate the Crank Handle to move the boom up and down.

Now, remove the string from the pulleys and attach it directly from the end of the boom to the winch (a mechanical device used to pull or tighten a rope) and repeat the experiment.

1. Which of the two experiments is easier? Why?
2. How could you add more pulleys? What changes would need to be made to the model?









“Human communities depend upon a diversity of talent not a singular conception of ability, and at the heart of the challenge is to reconstitute our sense of ability and intelligence”

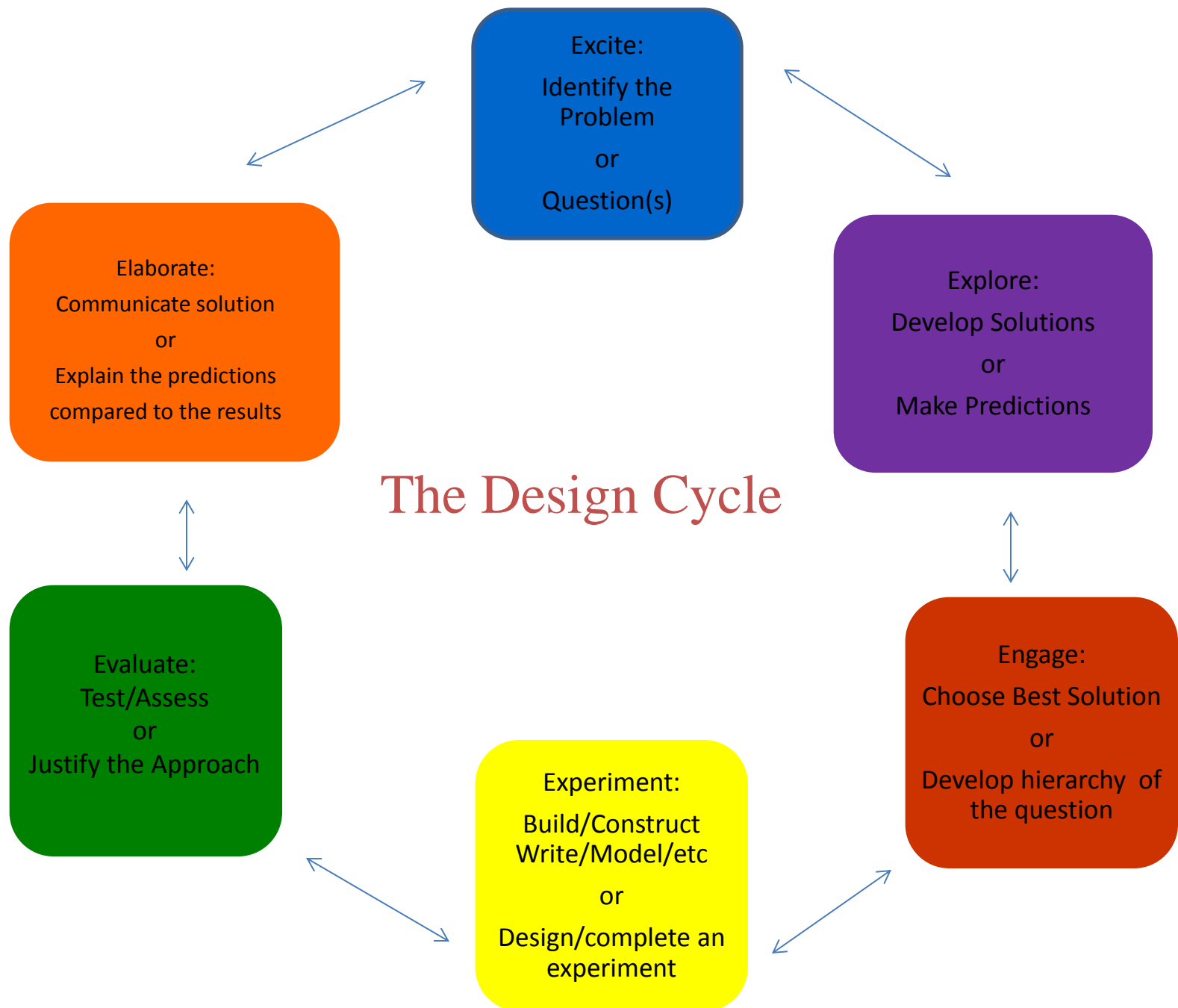
[Ken Robinson](#)



It's  
Challenge  
Time

The image features a circular analog clock face in the background. The clock has a white face with black numbers from 1 to 12. The hands are thin and black, with the hour hand pointing slightly past 10 and the minute hand pointing at 2. Overlaid on the clock face is the text 'It's Challenge Time' in a large, blue, bubbly font. The text is arranged in three lines: 'It's' on the top line, 'Challenge' on the middle line, and 'Time' on the bottom line. The entire graphic is enclosed within a blue rectangular border.







# Challenge:



## BrickLab Celebration to Idaho!

**Objective:** Idaho turned 150 on July 26, 2013. To celebrate this sesquicentennial event research, design, and build (using bricks) a monument/landmark or landform in “your” region that depicts Idaho’s rich history. The monument/landmark or landform can be a single object or a series of objects that are connected in some way.

### monument

*Noun:*

A building, statue, etc... that honors a person or event:  
A building or place that is important because of when it was built or because of something in history that happened there.

### landmark

*Noun:*

a structure (as a building) of unusual historical and usually aesthetic interest; *especially* : one that is officially designated and set aside for preservation that was important in history.

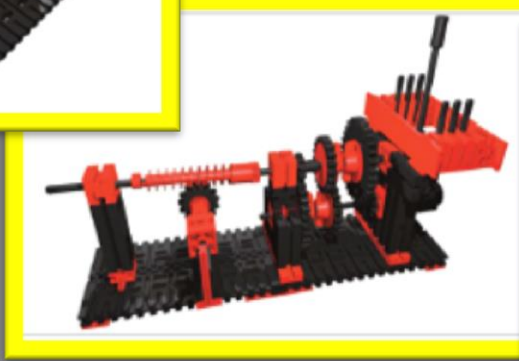
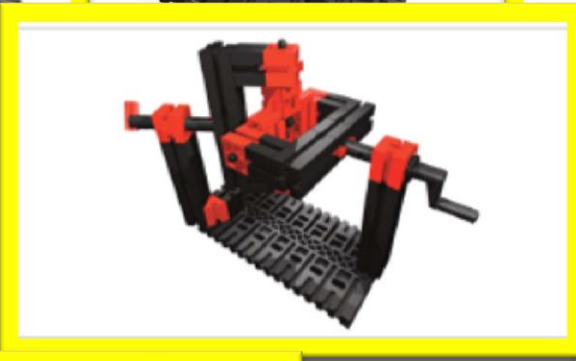
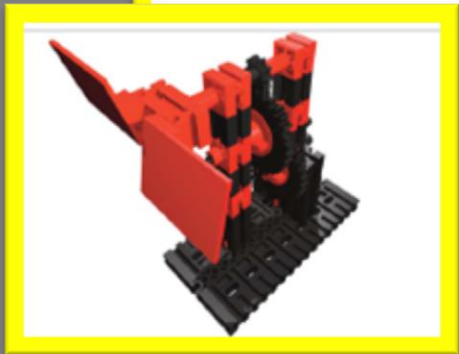
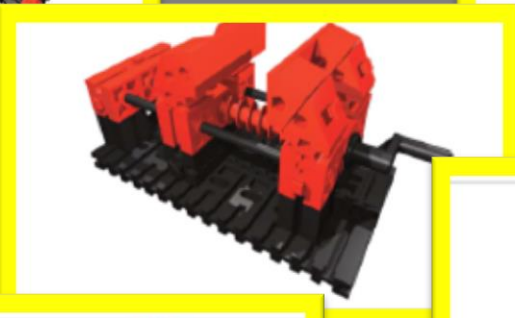
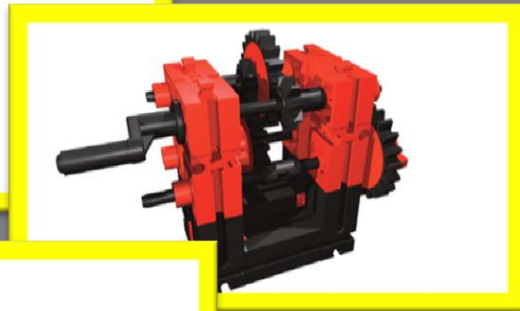
### landform

*Noun:*

a natural feature of a Land surface



Start Time: Now  
Stop Time: 9:45 AM



# Reinforcement Section

## *Lab Maintenance*

***Everything has a place and everything should be in its place.***

***Go over expectations with the students.***

These expectations are designed to create an environment that is conducive to learning, building, and inventing.

- Keep projects to a maximum of one at a time for each group
- Set up a “tracking” system for who/want/when.
  - Do not touch or handle others projects.
  - Label ongoing projects with your name.
  - Be courteous and helpful; not critical.

***Real World ~A.I.R.***

# K

What do you think you know about the BrickLab

# W

What do you think you want to know about the Bricklab?

# L

What did you LEARN about the BrickLab?

K

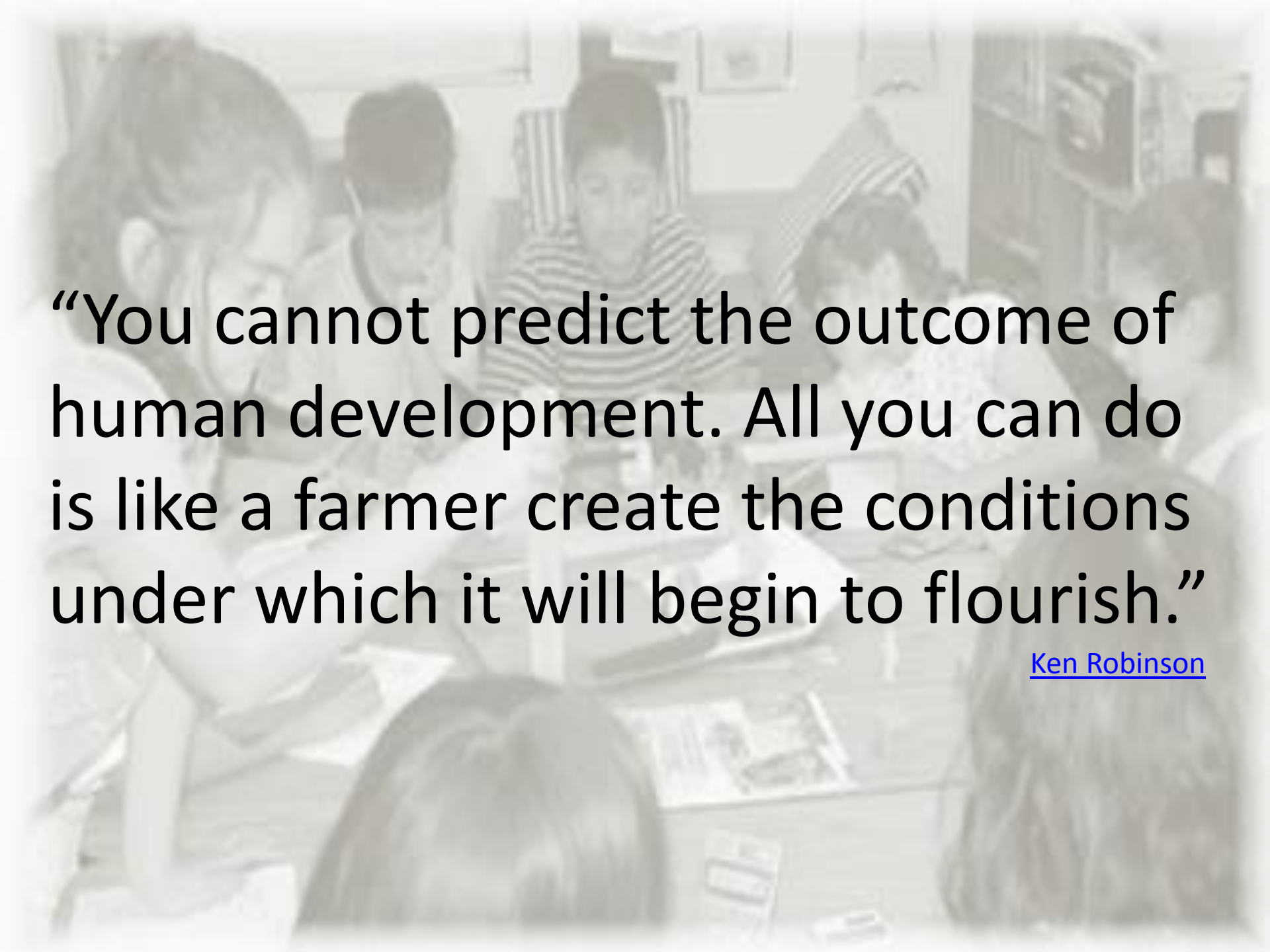
W

L



SOULPANCAKE





“You cannot predict the outcome of human development. All you can do is like a farmer create the conditions under which it will begin to flourish.”

[Ken Robinson](#)